Remote Server

16

15

18

RF Host Controller PC

13

Serial Comm.

11

10

14

RF Tag Reader

Prior Art

Figure 1, Current RF Reader Connection to a Service

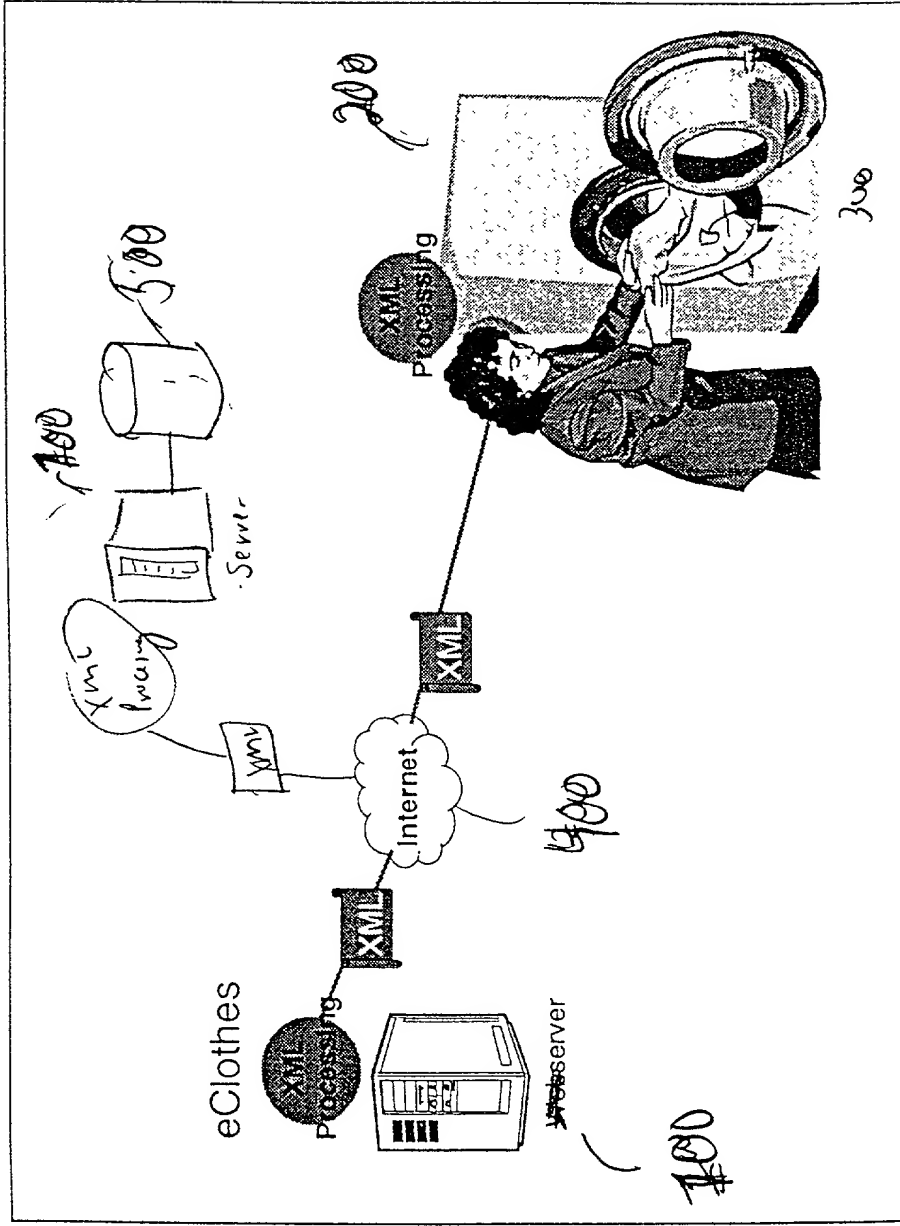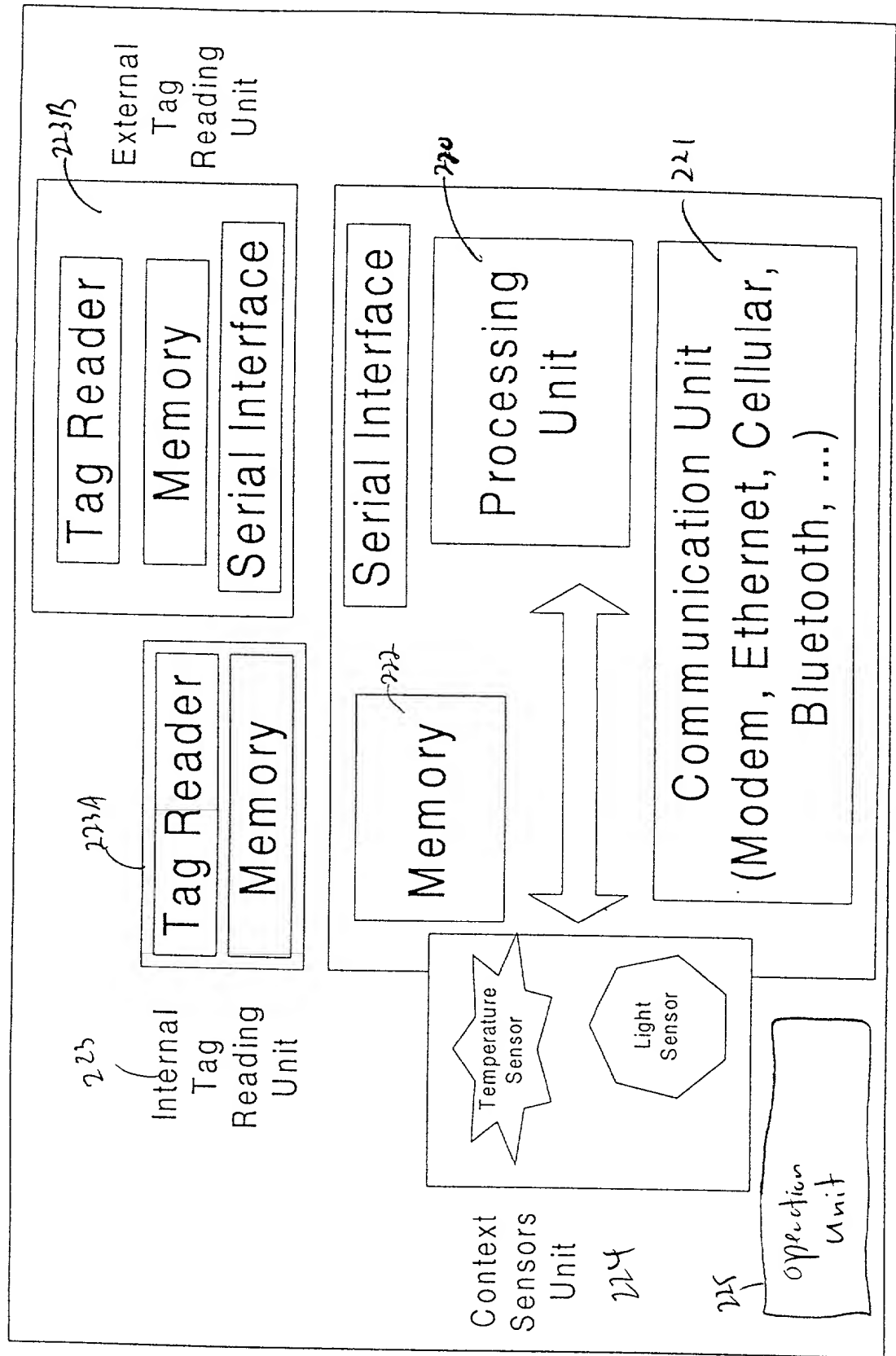Figure 2; Washing Machine enabled by the tag terminal

External Tag Reading Unit 223B

Tag Reader
Memory
Serial Interface

Internal Tag Reading Unit 223

Tag Reader
Memory 223A

Serial Interface 220

Memory 222

Processing Unit

Communication Unit 221
(Modem, Ethernet, Cellular, Bluetooth, ...)

Context Sensors Unit

Temperature Sensor

Light Sensor

224

225 Operation Unit

Figure 3, Hardware Design of Terminal

Application

Memory or Serial Interface

Tag Reader

XML parser (SAX, DOM)

SOAP: Read/Write

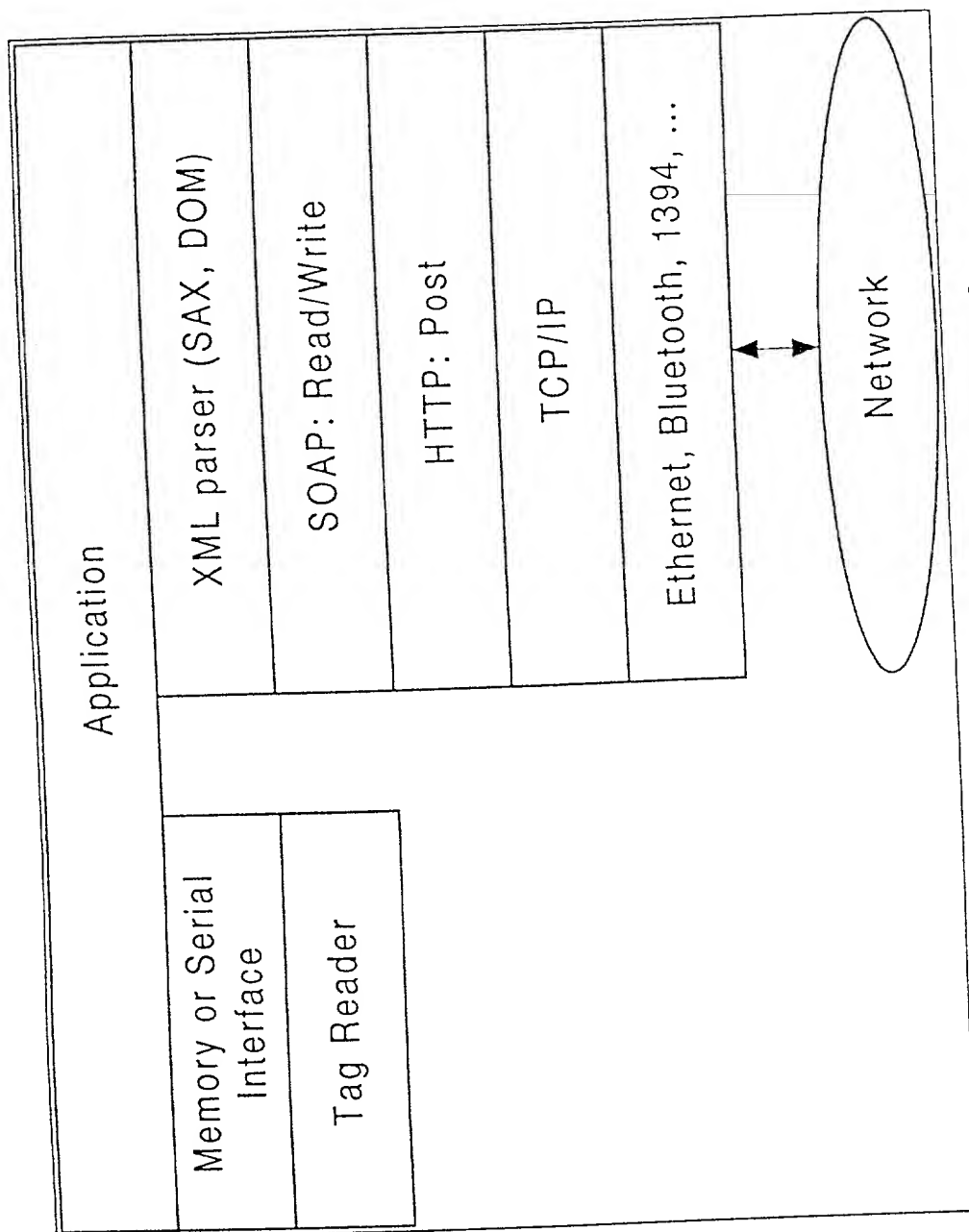HTTP: Post

TCP/IP

Ethernet, Bluetooth, 1394, ...

Network

Figure 4, Communication Stacks for Terminal

```
POST /soap/servlet/rpcrouter HTTP/1.1
Connection: Keep-Alive
Host: http://www.PhilipsServiceRouter.com:8080
Content-type: text/xml
Content-length: 527
SOAPAction: ""

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/1999/XMLSchema-instance" xmlns:xsd="http://www.w3.org/1999/XMLSchema">
<SOAP-ENV:Body>
<m: getWashingMachineSettings s xmlns:m=" http://www.PhilipsServiceRouter.com/soap/WashingMachineSetting"
SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
      <Reader>
             <Number> 1234567 </Number>
             <Manufacturer> Philips Semiconductor </Manufacturer>

      </Reader>
      <Garment>
             <RFTag xsi:type="xsd:string"> AC 7B 9C 00 00 00 00 01 </RFTag>
             <Owner xsi:type="xsd:string">Gap Clothes</Owner>

      </Garment>
      <Terminal>
             <Brand xsi:type="xsd:string">Whirlpool</Brand>
             <Model xsi:type=" xsd:string" >1510M</Model>

      </Terminal>
</m: getWashingMachineSettings >
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Fig 5

HTTP/1.0 200 OK

Date: Wed, 13 Sep 2000 16:02:38 GMT

Status: 200

Set-Cookie2: JSESSIONID=To1075mC33008273850081 66At;Version=1;Discard;Path="/soap"

Servlet-Engine: Tomcat Web Server/3.1 (JSP 1.1; Servlet 2.2; Java 1.3.0; Windows

NT 4.0 x86; java.vendor=Sun Microsystems Inc.)

Set-Cookie: JSESSIONID=To1075mC33008273850081 66At;Path=/soap

Content-Type: text/xml; charset=UTF-8

Content-Length: 707

Content-Language: en

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/1999/XMLSchema-instance" xmlns:xsd="http://www.w3.org/1999/XMLSchema">
    <SOAP-ENV:Body>
        <ns1:getWashingMachineSettings
xmlns:ns1="http://www.PhilipsServiceRouter.com/soap/WashingMachineSetting" SOAP-
ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
        <return xmlns:ns2="urn:Whirlpool-WashingMachine-Settings" xsi:type="ns2:WMResponse">
            <washing xsi:type="ns2:washing">
                <temprature xsi:type="xsd:int">150</temprature>
                <time xsi:type="xsd:int">20</time>
                <rpm xsi:type="xsd:int">120</rpm>
                ....
            </washing>
            <spinning xsi:type="ns2:spinning ">
                <time xsi:type="xsd:int">5</time>
                <rpm xsi:type="xsd:int">600</rpm>
                ....
            </spinning>
        </return>
        </ns1: getWashingMachineSettings >
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>>

Fig. 6